

REMARKS

The invention, as claimed in independent claim 1, relates to an arrangement including a light-emitting power semiconductor device. The device is disposed on a substrate, and a plastic protective body is formed by injection onto the substrate and shrouds the device substantially form-fittingly on its sides and top, leaving a light exit region exposed for coupling to an optical waveguide. The region between the light-emitting power semiconductor device and the optical waveguide is filled, at least segmentally, with a transparent plastic material.

Claim 1 has been amended to recite that the substrate structure is metallic and that filler particles are dispersed in the plastic protective body, a feature that had been introduced in dependent claim 2, which has been amended accordingly.

Claim 1 was rejected in the final office action under 35 USC 103(a) as obvious in view of Broom U.S. Patent No. 5,516,727 ("Broom") and Tanaka U.S. Patent No. 5,218,611 ("Tanaka"), and claim 2 was rejected on these two references further in view of Thillays U.S. Patent No. 4,387,385 ("Thillays").

In the office action the examiner admits that neither Broom nor Tanaka disclose a plastic protective body with filler particles being dispersed in the plastic protective body. The examiner instead relies on Thillays for a teaching of that feature.

Thillays discloses a display device with the light emitting semiconductor device (figure 3, reference 12) located inside of the waveguide (figure 3, reference 14). The waveguide itself contains only air (column 1, lines 19-20). It is clear that the region between the light emitting semiconductor device and the waveguide cannot be filled with a plastic protective body, since there is no free region between the light emitting semiconductor device and the waveguide. In conclusion Thillays does not anticipate the subject matter of amended claim 1.

It also would not be obvious to modify the Broom and/or Tanaka references in view of Thillays.

The invention relates to a semiconductor device which is substantially form-fittingly shrouded by a plastic protective body. The semiconductor device is therefore encapsulated by the plastic protective body. By comparison Thillays discloses a plastic body which coats the

semiconductor device neither on the sides nor on the top thereof (cf. figure 3). Said plastic protective body thereby forms a casing for said semiconductor device with filler particles being dispersed in said casing. Since these are completely different fields of invention a person skilled in the art would never combine the teachings of Thillays and e.g. Brooms in order to produce a coating plastic protective body with filler particles being dispersed therein. Moreover, even if a person skilled in the art were to combine these two references, he or she would not achieve a device according to amended claim 1, since Brooms fails to disclose that the region between the semiconductor device and the optical waveguide is filled with a transparent plastic material. In conclusion the subject matter of amended claim 1 is not obvious in light of Thillays taken alone or in combination with Broom and Tanaka.

As has been noted previously, the consistent teaching of all embodiments of Broom is that that an "air" gap or a region filled with an inert gas be provided in direct contact with the light emitting facet of the chip region filled with an inert gas be provided in direct contact with the light emitting facet of the chip (col. 2, lines 10-14). This serves to further distinguish claim 1 and distinguishes independent claim 16 as well, which is directed to a method of making an arrangement involving placing a semiconductor device on a substrate, affixing an optical waveguide to the substrate, injection coating the optical waveguide to completely shroud it in plastic forming a protective body, and exposing a light exit surface of the optical waveguide in the outer periphery of the plastic protective body.

Applicant asks that all claims be examined in view of the remarks and amendment to the claims.

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Enclosed is a \$770 check for Request for Continued Examination. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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